

UAVs IN CONTROLLED AIRSPACE – THE SOUTH AFRICAN PERSPECTIVE

UAV 2002



KENTRON UAV SYSTEMS



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SCOPE

- **INTRODUCTION**
- **UAV AIR TRAFFIC MANAGEMENT FORUM**
- **SA AVIATION LEGISLATION CHANGE**
- **CURRENT UAV ATM REGULATIONS (CONCEPT)**
 - CERTIFICATION
 - OPERATOR QUALIFICATIONS
 - AIRSPACE PRINCIPLES FOR UAVs
 - MALE/HALE OPERATIONS
 - CAA POLICY STATEMENT



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SEEKER II



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INTRODUCTION

- UAVs Operating in Controlled Airspace Since 1994.
- Debate: Military vs Civil Operations.
- Minimum Equipment Required to Operate in Controlled Airspace.
- Same ATM Procedures From 1994 – 2000.
- UAVs Restricted to IFR Levels, Not VFR Levels.
- Foreign Armed Forces UAV Training in South Africa Created Paradigm Shift for CAA wrt UAVs in Controlled Airspace.



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UAV AIR TRAFFIC MANAGEMENT FORUM

- Requirement Identified by CAA to Review the Gap in UAV ATM Procedures.
- 2. ATNS requested to establish forum consisting of:
 - *South African Air Force.*
 - *Kentron UAV Systems.*
 - *Civil Aviation Authority.*
 - *Air Traffic and Navigation Services.*
- 3. Consensus to Amend Aviation Legislation to Include UAVs as Independent Aircraft Type – Finalised by 2003.
- 4. Utilise Inputs from UCARE Concept of Operations .



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SOUTH AFRICAN AVIATION LEGISLATION CHANGE

- 2001 Division of Airspace Sectors - Flexible Use of Airspace Concept.
- 3 Main FIRs in South Africa – Improved VHF Comms Network with Strategically Placed Repeaters Countrywide.
- All Airspace Requirements Managed by CAMU.
- CAA is Policy Maker, ATNS runs Airspace Management.
- Emphasis shifted from Military vs Civilian Operations to Manned vs Unmanned Operations.



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CONCEPT UAV ATM REGULATIONS

CERTIFICATION

- *Establish Airworthiness Requirements*
- *Approval of Navigation Systems and Other Equipment*
- *Response/Reaction Times*
- *Security of Payload/Control Links*
- *Ground Station*
- *Emergency Procedures*
- *Failure/Termination Modes*
- *Blackbox (Retrievable Downlink)*
- *ATC Communication System and Functions*



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CONCEPT UAV ATM REGULATIONS

OPERATOR QUALIFICATIONS

- *No Regulations Governing UAV Operator Qualifications*
- *Crew Licensed and Appropriately Rated – Instrument Rating Endorsed “UAV”*
- *CAR to Specify Required Levels of Training and Proficiency:*
 - Aeronautical Knowledge
 - Knowledge of Flight Critical Systems of Specific UAV Type
 - Manned Aircraft Pilot Qualifications
 - UAV Flight Training Levels
 - Flight Proficiency and Currency for UAVs
 - ATM Knowledge



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CONCEPT UAV ATM REGULATIONS

AIRSPACE PRINCIPLES FOR UAV OPERATIONS

- UAVs to Meet Same or Better Safety Standard as Manned Aircraft
- UAV Operators to Act Within Existing Aviation Regulations
- Information on Airspace Regulations to be sought from the CAMU
- No Different ATM Procedures for UAVs
- All UAV Callsigns to include the word “UNMANNED”
- UAVs will Operate IFR under CLoS
- “See and Avoid” will be termed “Sense and Avoid”
- Approved TCAS Systems for UAVs in the FIR and Controlled Airspace
- Collision Avoidance Rules Apply to all Flights under IFR with ATC Clearance and VFR



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CONCEPT UAV ATM REGULATIONS

HALE/MALE UAV OPERATIONS

- *South Africa has no Current Requirement*
- *CAA and ATNS aware of Probable Operations in South African Airspace*
- *ATM Based on Same Principle as for Tactical UAVs*
- *Provision to be made in Aviation Legislation to Accommodate HALE/MALE Platforms*



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CONCEPT UAV ATM REGULATIONS

CAA POLICY STATEMENT

UAVs WILL BE CONSIDERED AS MANNED AIRCRAFT IN ALL OPERATIONAL ASPECTS



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